

# Virginia Western Community College

## EGR 216

### Introduction to Computer Programming

#### **Prerequisites**

Basic Computer knowledge including file management, mouse usage, and keyboarding skills.

Co-requisite(s): MTH 115

#### **Course Description**

Provides advanced level experience in using a computer as a tool for solving technical problems and performing office functions. Includes computer hardware and operating system usage, structured programming in a selected high level language, use of word processing software, computer graphics and spreadsheets. Focuses on the analysis and solution of problems in engineering and technology.

**Semester Credits: 3**

**Lecture Hours: 2**

**Lab/Recitation Hours: 2**

#### **Required Materials**

##### **Textbook:**

Hands on Introduction to Labview, Author: Essick, 3<sup>rd</sup> Edition, ISBN: 9780190211899  
Publisher: Oxford

##### **Other Required Materials:**

Storage devices:

1. Required: free cloud based storage account.
2. Required: USB portable drive



To complete assignments outside the classroom, the student will need access to a current computer and a high-speed internet service and media player. The college provides an open lab for those students without home access to needed software.

Software: Microsoft Office Suite of programs 2010 or newer. **Microsoft WORKS** will not provide the support required for this course. Students must have The Office Suite installed on their computer or use the computer labs at the college. The earlier versions of the Office Suite software will work for completing the homework, but will not be supported and will not be available for use in testing.

Tutoring: available free of charge in the open lab M302.

### **Course Outcomes**

**At the completion of this course, the student should be able to demonstrate:**

1. Use the computer to research the Internet and electronic libraries. Articulate the problems associated with Internet research.
2. Demonstrate the use of a cloud-based storage system for data saving and retrieval.
3. Demonstrate the use of word processing software to complete simple technical communications.
4. Demonstrate the use of word processing software to create equations, insert graphs, tables and pictures.
5. Demonstrate the use of spreadsheets to solve simple and complex repetitive calculations.
6. Demonstrate the use of spreadsheets to create tables and graphs, and to analyze experimental data.
7. Create input data validation controls to guide program users of spreadsheets.
8. Demonstrate elementary actions in database usage.
9. Demonstrate the use of the basic computer-aided-design software programs used in engineering and technology such as Inventor, Multi-SIM, or Lab View.
10. Understand the importance of units and significant digits in engineering analysis.



**Topical Description**

Week #	Topic
1	Software in Engineering Technology. Microsoft Excel Basics, Formulas
2	Tables, Data Validation, Conditional Formatting, VLOOKUP
3	Pivot Tables, Excel Graphing Basics
4	Excel Graphing
5	Excel Data (LEWAS)
6	Introduction to Excel Macros (VBA)
7	Test 1. (Excel)
8	Google Docs, Internet Research, Tech. Writing using Microsoft Word
9	Technical Presentations using Microsoft Power Point
10	Technical Report Due. In Class Presentations, LabVIEW Intro
11	LabVIEW - Basics, While Loop, Ch. 1, 2
12	LabVIEW - For Loop, Math Node, SubVi Ch. 3, 4
13	LabVIEW- Shift Register, Case. Ch. 7, 8
14	LabVIEW - Data Acquisition. Handout.
15	Test 2. (LabView) Review for Final
16	Final (Excel and LabVIEW)

**Notes to Instructors**

1. A comprehensive exam is required and is approximately 15% of the grade.

